What Is Claimed Is:

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- 1 1. A system for equipment malfunction detection and diagnosis, comprising:
- equipment to transfer status information thereof at preset intervals; and
 - a detection/diagnosis unit coupled to the equipment to receive the status information, check whether the status information conforms to a process control standard, and if not, determine that the equipment has a malfunction.
- 2. The system as in claim 1 further comprising a status information database for storing the status information of the equipment.
- 3. The system as in claim 1 wherein the detection/diagnosis unit further generates a notification if the equipment malfunctions.
- 4. The system as in claim 1 further comprising a diagnostic database from which a recovery measure for the malfunction is retrieved by the detection/diagnosis unit if the equipment malfunctions.
- 5. The system as in claim 1 wherein the detection/diagnosis unit further stops operation of the equipment if the equipment malfunctions.

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- 1 6. The system as in claim 1 wherein the status
- 2 information comprises a parameter value corresponding to at
- 3 least a process parameter.
- 7. The system as in claim 6 wherein the equipment is
- 2 semiconductor furnace equipment.
- 1 8. The system as in claim 7 wherein the process
- 2 parameter comprises a processed material identity, a wafer
- 3 count, a process program identity, a chamber identity, an
- 4 operator identity, a boat map, a step identity, a zone
- 5 temperature, a pressure, a mass flow controller, a gas flow,
- 6 a valve opening angle, or a leakage pressure.
- 9. A method for equipment malfunction detection and
- diagnosis, comprising the steps of:
- 3 transferring status information of equipment at preset
- 4 intervals to a detection/diagnosis unit; and
- 5 checking whether the status information conforms to a
- 6 process control standard, and if not, determining
- 7 that the equipment has a malfunction.
- 1 10. The method as in claim 9 further comprising
- 2 storing the status information of the equipment.
- 1 11. The method as in claim 9 further comprising
- 2 generating a notification if the equipment malfunctions.

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- 1 12. The method as in claim 9 further comprising
- 2 retrieving a recovery measure for the malfunction by the
- 3 detection/diagnosis unit if the equipment malfunctions.
- 1 13. The method as in claim 9 further comprising
- 2 stopping operation of the equipment if the equipment
- 3 malfunctions.
- 1 14. The method as in claim 9 wherein the status
- 2 information comprises a parameter value corresponding to at
- 3 least one process parameter.
- 1 15. The method as in claim 14 wherein the equipment is
- 2 semiconductor furnace equipment.
- 1 16. The method as in claim 15 wherein the process
- 2 parameter comprises a processed material identity, a wafer
- 3 count, a process program identity, a chamber identity, an
- 4 operator identity, a boat map, a step identity, a zone
- 5 temperature, a pressure, a mass flow controller, a gas flow,
- 6 a valve opening angle, or a leakage pressure.